

B.Sc. RADIOTHERAPY TECHNOLOGY
(New Syllabus 2014 - 2015)

THIRD YEAR

**PAPER III – QUALITY ASSURANCE, RADIOBIOLOGY AND
RADIATION SAFETY IN RADIOTHERAPY**

Q.P. Code: 801938

Time: Three Hours

Maximum: 100 Marks

Answer all questions

I. Elaborate on: **(3 x 10 = 30)**

1. Describe in detail about the mechanical and radiation quality assurance procedure of medical linear accelerator.
2. a) Explain the various components of cobalt – 60 teletherapy machine.
b) Describe in detail about the quality assurance of HDR brachytherapy unit.
3. Explain in detail the 5 R's of radiobiology and its significance in radiotherapy.

II. Write notes on: **(8 x 5 = 40)**

1. Chromosomal aberrations with neat diagram.
2. Explain primary and secondary barriers and last man out switch.
3. Advantages and disadvantages of various detectors.
4. Acceptance testing of treatment planning system.
5. Explain shrinking field technique.
6. Define and elaborate the classification of harmful effects of radiation in human body.
7. Principle and working of thimble chamber.
8. Field congruence test in teletherapy units.

III. Short answers on: **(10 x 3 = 30)**

1. How will you find out the Timer Error in HDR brachytherapy system?
2. Define isocentre.
3. Define LET and RBE.
4. Write short notes on radiation symbol.
5. What are the instruments used in output measurement of telecobalt machine?
6. Define wedge transmission factor.
7. Mention three responsibilities of licensee.
8. Define maze.
9. What is ionization and excitation?
10. Define oxygen effect.
